11465-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	)	Group Art Unit: 3401 (prior application)
STEVE INGISTOV	)	
	)	Examiner: J. Kwon (prior application)
Serial No.: (FWC of 08/656,564)	)	
Filed: (prior application: 5/31/96)	)	
For: TURBINE POWER PLANT HAVING MINIMAL-CONTACT BRUSH SEAL AUGMENTED LABYRINTH SEAL	)	July 15, 1997 San Bernardino, California

PRELIMINARY AMENDMENT

Assistant Commissioner
For Patents
Washington, D. C. 20231

Sir:

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231, on July 15, 1997

15 Jul 97 Anne M Cobey
(date signed)

Please amend the above-referenced application as follows:

IN THE CLAIMS:

Please amend claims 1-5, 7-9, and 11-16 as follows:

1. A stationary gas turbine engine for a power plant, comprising:

(a) a multistage axial compressor, the compressor having a rotor, the rotor having a cylindrical land region downstream of a last-stage of the compressor, the land region having an outside diameter D;

(b) a turbine shaft-coupled to the rotor of the compressor;

(c) a combustor fluid coupled between the compressor and the turbine;

(d) a stationary inner barrel member downstream of the compressor, air flowing from the compressor to the combustor passing outside of the inner barrel member, a chamber within the inner barrel member forming a main passage for cooling air from the compressor, the cooling air flowing from the chamber and being mixed with combustion gases upstream of the turbine; and

(e) a brush seal for restricting air passage into the chamber from the compressor, the brush seal comprising:

(i) a ring-shaped holder;

(ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(iii) [means for fastening] the holder being fastened to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

2. The engine of claim 1, further comprising [means for selectively altering the flow of cooling air from the chamber, comprising:

(a)] a barrel passage extending through one wall of the inner barrel for passing air therethrough downstream of the brush seal, thereby altering the flow of cooling air from the chamber to be mixed with the combustion gases upstream of the turbine [;

(b) means for connecting the fluid port to an auxiliary source of pressure air external of the inner barrel, whereby pressure air from the auxiliary source augments the flow of cooling air from the chamber; and

(c) means for changeably restricting flow of pressure air into the chamber from the auxiliary source of pressure air].

3. The engine of claim 2, [wherein the compressor provides at least a portion of the auxiliary source] further comprising a structure for changeably restricting the barrel passage.

4. The engine of claim 3, wherein the [means] structure for changeably restricting comprises [means] a receptacle for removably mounting a device in the passage, the device being selected from the set consisting of a plug and a jet.

5. The engine of claim [1] 22, [wherein the means for selectively altering] further [comprises] comprising:

(a) a valve for adjustably restricting flow of pressure air into the chamber from the auxiliary source of pressure air; and

(b) [means] an instrument for monitoring an operating parameter of the engine, the operating parameter being responsive to the flow of cooling air from the chamber.

7. The engine of claim 5, wherein the [means for monitoring] instrument comprises a temperature sensor for indicating a temperature within the chamber.

8. The engine of claim 5, further comprising an outer barrel surrounding the inner barrel and having a fluid port extending radially through one wall thereof, the gas flow from the compressor to the combustor passing between the outer barrel and the inner barrel, [the means for connecting the fluid port comprising] a fluid conduit connected within the outer barrel between the barrel passage and the fluid port, and [means for connecting] the auxiliary source of pressure air being connected to the fluid port external of the outer barrel, whereby air from the auxiliary source flows into the chamber in pressure isolation from the air flowing to the combustor.

9. The engine of claim 1, further comprising an insert ring connecting segments of the inner barrel member, the insert ring being located proximate the land region of the rotor, [wherein the means for fastening the brush seal to the inner barrel member

comprises] the holder being fastened to the insert ring by a plurality of threaded fasteners.

11. In a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D, the improvement comprising a brush seal connected to the inner barrel and augmenting the labyrinth seal, being fluid connected in series therewith, the brush seal comprising:

(a) a ring-shaped holder;

(b) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(c) [means for fastening] the holder <u>being fastened</u> to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

12. The turbine power plant of claim 11, <u>wherein a chamber within the inner barrel member forms a passage for cooling air from the compressor,</u> the further improvement comprising [means for selectively altering the flow of cooling air from the chamber, comprising:

(a)] a <u>barrel</u> passage extending through one wall of the inner barrel <u>for passing air therethrough downstream of the brush seal, thereby altering the flow of cooling air from the chamber to be mixed with the combustion gases upstream of the turbine</u> [;

(b) means for connecting the passage to an auxiliary source of pressure air external of the inner barrel, whereby pressure air from the auxiliary source augments the flow of cooling air from the chamber;

(c) means for changeably restricting flow of pressure air into the chamber from the auxiliary source of pressure air].

13. In the turbine power plant of claim [11] 24, wherein the [means for selectively altering] improvement further comprises:

(a) a valve for adjustably restricting flow of pressure air into the chamber from the auxiliary source of pressure air; and

(b) [means] an instrument for monitoring an operating parameter of the engine, the operating parameter being responsive to the flow of cooling air from the chamber.

14. In the turbine power plant of claim 13, the further improvement wherein the [means for adjustably restricting comprises] valve is a calibrated needle valve.

15. In the turbine power plant of claim 13, the further improvement wherein the [means for monitoring] instrument comprises a temperature sensor for indicating a temperature within the chamber.

16. In the turbine power plant of claim 13, [wherein] the power plant also having an outer barrel surrounding the inner barrel, the gas flow from the compressor to the combustor passing between the outer barrel and the inner barrel, the further improvement comprising a fluid port extending radially through one wall of the outer barrel, [the means for connecting the fluid port comprising] a fluid conduit connected between the barrel passage and the fluid port, and [means for connecting] the auxiliary source of pressure air being connected to the fluid port external of the outer barrel, whereby air from the auxiliary source flows into the chamber in pressure isolation from the air flowing to the combustor.

Please add claims 21-24 as follows:

21. The engine of claim 2, wherein the barrel passage is one of a plurality of barrel passages.

22. The engine of claim 2, further comprising an auxiliary source of pressure air connected to the barrel passage for augmenting air flow into the main passage, thereby augmenting cooling air flow from the main passage to be mixed with the combustion gases.

23. The engine of claim 22, wherein the compressor provides at least a portion of the auxiliary source.

24. The engine of claim 12, further comprising an auxiliary source of pressure air connected to the barrel passage for augmenting air flow into the main passage, thereby augmenting cooling air flow from the main passage to be mixed with the combustion gases.

REMARKS

Claims 1-24 are in this application. Claims 1-5, 7-9, and 11-16 have been amended; and claims 21-24 have been added. No new matter is added.

The amendment of claim 1 changing "passage" to "main passage", and the amendment of claim 2 changing "passage" to "barrel passage serves to clarify the distinction between the respective passages. Support for the amendment of claim 3 is found in claim 2 as originally presented. Support for the amendment of claim 8 is found in the specification at page 12, lines 10-20. Claim 5, originally dependent from claim 1, has been amended to depend from the new claim 22, and further as supported by the specification at page 12, lines 23-31.

Support for the new claim 21 is found in the specification at page 12, lines 5-7. Support for the new claims 22 and 24 is found in the specification at page 12, lines 10-12, and in claims 2 and 12 as originally presented. Support for the new claim 23 is found in claim 3 as originally presented.

A notice of allowance was mailed as the first Office Action in the parent case (application Serial No. 08/656,564 that was filed on May 31, 1996) on April 15, 1997. Formal drawings were substituted on May 27, 1997. The purpose of this application is to present the claims in better form. It is believed that no substantial new question of patentability is raised by this amendment.

Respectfully submitted,

SHELDON & MAK

Date: 15 July 1997 By Stephen R. Seccombe

Stephen R. Seccombe
Reg. No. 31,136

290 North D Street, Suite 503
San Bernardino, California 92401
(909) 889-3649